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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GEORGE TASH

Appeal 2008-002069
Application 10/601,358
Technology Center 3700

Decided: October 30, 2009

Before: WILLIAM F. PATE, III, JENNIFER D. BAHR, and JOHN C. KERINS, *Administrative Patent Judges*.

BAHR, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

George Tash (Appellant) appeals under 35 U.S.C. § 134 (2002) from the Examiner's decision rejecting claims 1-20, which are all of the pending claims. Notice of App. 1. Appellant only contests the rejections of claims 1, 3, 9-16, and 19. App. Br. 2. Accordingly, all pending rejections of claims 2, 4-8, 17, 18, and 20 are summarily sustained. We have jurisdiction over this appeal under 35 U.S.C. § 6 (2002).

The Invention

Appellant's claimed invention is directed to a nozzle regulator constructed of a deformable material for automatically adjusting the output area of a venturi pump as needed to provide increased suction force at an inlet of the venturi pump. Spec. 1:16-19.

Claims 1 and 15, reproduced below, are illustrative of the claimed subject matter.

> 1. A nozzle regulator, comprising:
>
> an outer tubular cylinder having a first radius;
>
> an inner tubular cylinder having a second radius that is less than the first radius, wherein the outer tubular cylinder and the inner tubular cylinder are concentric about a longitudinal direction, and wherein the inner tubular cylinder is made of a deformable material such that when a fluid within the inner tubular cylinder experiences a backpressure, the second radius automatically decreases, but when the backpressure is removed the second radius automatically increases back to its original dimension; and

an inlet section that connects the outer tubular cylinder and the inner tubular cylinder at an inlet side in the longitudinal direction.

15. An outlet side regulated venturi pump for pumping fluid, comprising:

a primary inlet that receives a fluid pressure source such that fluid under pressure flows from the fluid pressure source to the primary inlet;

a venturi throat in fluid communication with the primary inlet that decelerates the fluid flowing from the primary inlet and creates a low-pressure area within a cavity located at an outlet of the venturi throat:

a secondary inlet in fluid communication with the venturi throat and cavity that allows a fluid being pumped to be drawn through the secondary inlet into the cavity by the low-pressure area in the cavity; and

an automatically deformable nozzle regulator in fluid communication with the venturi throat and cavity that automatically adjusts its output area to further decrease the pressure in the cavity.

The Rejections

The Examiner relies upon the following as evidence of unpatentability:

Strumbos	US 3,605,672	Sep. 20, 1971
Blackshear	US 3,667,069	Jun. 6, 1972
Tash	US 4,963,073	Oct. 16, 1990
Popov	US 6,250,890 B1	Jun. 26, 2001

The following rejections made by the Examiner are before us for review.

(1) Claims 1-3 under 35 U.S.C. § 102(b) as being anticipated by Strumbos;

(2) Claims 5-7, 9, and 14 under 35 U.S.C. § 103(a) as being unpatentable over Strumbos;

(3) Claim 15 under 35 U.S.C. § 103(a) as being unpatentable over Tash and Strumbos; and

(4) Claims 1-20 under 35 U.S.C. § 103(a) as being unpatentable over Popov and Blackshear.

SUMMARY OF DECISION

We AFFIRM-IN-PART.

SUMMARY AFFIRMANCE

Appellant does not contest the pending rejection of claim 2 as being anticipated by Strumbos; the pending rejection of claims 5-7 as being unpatentable over Strumbos; and the rejection of claims 2, 4-8, 17, 18, and 20 as being unpatentable over Popov and Blackshear. Accordingly, we summarily affirm the Examiner's decision as to claims 2, 4-8, 17, 18, and 20.

OPINION

Rejection (1)

Issue:

The issue presented is whether Appellant has demonstrated that the radius of the inner tubular cylinder, defined by inflatable elastic sector members 16 through 19, of Strumbos is not automatically decreased when a

fluid within the inner tubular cylinder experiences a backpressure, as called for in claim 1. *See* App. Br. 10-11; Ans. 4 and 11-12.

Facts:

As described in Appellant's Specification and drawings, Appellant's deformable nozzle regulator 105 includes an outer tubular cylinder 400, an inner tubular cylinder 410, and an inlet section 420. Spec. 9:9-12; Fig. 4. When the backpressure is great enough, the backpressure experienced by the fluid flowing through the inner tubular cylinder 410 causes the radius (r_{inner}) to decrease by acting in the nozzle regulator cavity 450 formed between the outer tubular cylinder 400 and the inner tubular cylinder 410, such that it is exerted on the outside of the inner cylinder 410. Spec. 11:10-13 and 19-27. According to Appellant's Specification, "[b]ecause of the deformable nature of the nozzle regulator 105, when the backpressure is great enough the inner cylinder radius, r_{inner}, constricts thereby decreasing r_{inner}. Once the backpressure is relieved, the deformable nature of the nozzle regulator 105 causes r_{inner} to return to its original value." Spec. 11:11-15.

Strumbos describes a directional control apparatus (direction controller) 10 comprising a plurality of inflatable elastic sector members 16, 17, 18, and 19 fabricated from natural rubber or rubber-like material. Strumbos, col. 5, ll. 9-10, 18-19, and 23-24. As illustrated in Figures 2-5, each of the sector members, like Appellant's deformable nozzle regulator 105, includes an outer tubular cylindrical wall and an inner tubular cylindrical wall. The inflatable sector members of Strumbos have outer wall surfaces 20, 21, 22, and 23 which form the inside wall or duct 24 of the annular controller 10. Strumbos, col. 5, ll. 19-21. As shown in Figure 2, each sector member 16 through 19 of Strumbos is connected via fluid

passages 34, supply conduits 35, 36, 37, and 38, and distributing valve 39 to pressurized fluid supply 40. *Id.*, col. 5, ll. 55-58. The material used to form the inflatable sector members provides "sufficient elasticity to permit substantial inflation of the member when pressurized by a fluid under pressure and a spontaneous return of the member to its unstretched state upon deflation." *Id.*, col. 5, ll. 24-29. The distributing valve 39 is selectively positionable so as to maintain or relieve pressure in selected ones of the sector members 16 through 19. *Id*, col. 6, l. 58 to col. 7, l. 37.

The fluid pressure from the fluid control circuit of Strumbos which inflates the inflatable sector members, thus also decreasing the inner radius of the controller, is not a backpressure experienced by fluid within the inside wall or duct 24 of the controller. Moreover, because the inflatable sector members of Strumbos are in communication only with the fluid circuit, and not with fluid within the inside wall or duct 24 of the controller, a backpressure experienced by fluid within the inside wall or duct will not cause the sector members to deflate, so as to decrease the radius of the inside wall or duct 24. Therefore, the radius of the inside wall or duct 24 of the controller of Strumbos will not automatically decrease when a fluid within the inside wall or duct 24 experiences a backpressure.

Analysis:

To establish anticipation, every element and limitation of the claimed invention must be found in a single prior art reference, arranged as in the claim. *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1383 (Fed. Cir. 2001).

As shown in our findings above, the radius of the inside wall or duct 24 of the controller of Strumbos will not automatically decrease when a fluid

within the inside wall or duct 24 experiences a backpressure. Thus, Strumbos does not satisfy the limitation of claim 1 that the second radius automatically decreases when a fluid within the inner tubular cylinder experiences a backpressure, and, consequently, does not anticipate the subject matter of claim 1, or claim 3, which depends from claim 1.

Conclusion:

Appellant has demonstrated that the radius of the inner tubular cylinder, defined by inflatable elastic sector members 16 through 19, of Strumbos is not automatically decreased when a fluid within the inner tubular cylinder experiences a backpressure, as called for in claim 1. Therefore, we do not sustain the rejection of claim 1, and claim 3, which depends from claim 1.

Rejection (2)

Issue:

Appellant argues that Strumbos does not disclose a nozzle regulator constructed entirely of a deformable material. App. Br. 15. In particular, Appellant urges that the inflatable sector members of Strumbos alone cannot be considered to be the entire nozzle regulator, as asserted by the Examiner on pages 5 and 12 of the Answer. Reply Br. 5. Specifically, Appellant points out that the controller of Strumbos is non-functional without the rigid shroud 15 to which the sector members are attached, and without the elements (conduits, distributing valve, and pressurized fluid supply) of the fluid control circuit which provides the pressure to inflate and deflate the sector members. App. Br. 15 and Reply Br. 5.

The issue presented for our review is whether Appellant has shown that the Examiner erred in finding that the inflatable sector members of

Strumbos are a deformable nozzle regulator constructed of a deformable material, as called for in claim 9.

Appellant does not present any arguments for the separate patentability of claim 14 apart from claim 9. Thus, in accordance with 37 C.F.R. § 41.37(c)(1)(vii) (2009), claim 14 stands or falls with independent claim 9.

Facts:

The term "entirely" is not used in claim 9. In particular, claim 9 recites that "the automatically deformable nozzle regulator is constructed of a deformable material." This is in contrast to claim 3, which recites that "the entire nozzle regulator is constructed of the deformable material."

Appellant's deformable nozzle regulator 105 is press fitted into the outlet portion 200 of pump body 110. Spec. 8:16-17; Fig. 3. Appellant does not describe the pump body 110 as being made of a deformable material. Appellant also does not describe the pump body 110 as being part of the deformable nozzle regulator.

In Appellant's disclosed invention, the fluid pressure that causes the backpressure that reduces the radius of the inner tubular cylinder 410 is not characterized as part of Appellant's deformable nozzle regulator 105. Rather, the fluid pressure comes from a fluid pressure source 130, such as a garden hose, and from the pressure head of the fluid contained in tank 120. Spec. 7:15-27.

The inflatable sector members 16 through 19 of Strumbos are bonded or otherwise suitably attached to the inside surface of rigid shroud 15. Strumbos, col. 5, ll. 18 and 36-38. Strumbos does not specify the materials

of the fluid passages 34, supply conduits 35, 36, 37, and 38, and distributing valve 39 of the fluid control circuit.

Analysis:

Appellant's argument, which seemingly acknowledges by its parenthetical reference to the term "entirely" (*see* App. Br. 15) that claim 9 does not explicitly call for the deformable nozzle regulator to be constructed entirely of a deformable material, is premised on a construction of claim 9 as requiring that the deformable nozzle regulator is constructed entirely of a deformable material. Inasmuch as claim 9 does not recite that the deformable nozzle regulator is constructed "entirely" of a deformable material, it would be inappropriate for us to read such a limitation into the claim. It is well settled that limitations not appearing in the claims cannot be relied upon for patentability. *In re Self*, 671 F.2d 1344, 1348 (CCPA 1982).

Moreover, even if we were to construe claim 9 as implicitly requiring that the entirety of the deformable nozzle regulator be constructed of a deformable material, as Appellant's argument seemingly urges, that limitation would not distinguish over the annulus formed of inflatable sector members 16 through 19 of Strumbos. We do not agree with Appellant that the Examiner has erred in reading the deformable nozzle regulator on inflatable sector members 16 through 19 alone. While Appellant correctly points out that the controller of Strumbos includes other elements, such as the fluid circuit and the rigid shroud 15, which are not described as being constructed of a deformable material, the same may be said of Appellant's pump, as shown in our findings above. The elements of the fluid circuit and the rigid shroud 15 of Strumbos need not be considered part of the deformable nozzle regulator (inflatable sector members), any more than the

pressure source and pump body 110 of Appellant's pump need be considered part of Appellant's deformable nozzle regulator.

Conclusion:

Appellant has not shown that the Examiner erred in finding that the inflatable sector members of Strumbos are a deformable nozzle regulator constructed of a deformable material, as called for in claim 9. Thus, Appellant has not convinced us that the rejection of claim 9, and claim 14, which falls with claim 9, should be reversed.

Rejection (3)

Issue:

Appellant argues that Tash lacks an automatically deformable regulator, and that Strumbos does not teach an automatically deformable nozzle regulator in fluid communication with a venturi throat and a cavity located at an outlet of the venturi throat, wherein the nozzle regulator automatically adjusts its output area to further decrease the pressure inside the cavity. App. Br. 17. Specifically, Appellant contends that "Strumbos teaches that each sector member is *selectively inflated or deflated* under the *control* of a fluid circuit which pumps an independently controlled source of pressurized fluid *inside* each sector member in order to produce a directional *steering force*." Reply Br. 6. Thus, according to Appellant, Tash and Strumbos, even if combined, would still not render obvious an automatically deformable nozzle regulator in fluid communication with the venturi throat and cavity that automatically adjusts its output area to further decrease the pressure in the cavity. App. Br. 17-18. The issue presented is whether Appellant has demonstrated that the

Examiner has failed to establish a prima facie case that the combined teachings of Tash and Strumbos render obvious the subject matter of claim 15.

Facts:

The Examiner finds that Tash describes all features of claim 15, except an automatically deformable nozzle regulator in fluid communication with the venturi throat that automatically adjusts its output area to further decrease pressure in the venturi throat. Ans. 7. Appellant does not contest this finding. Further, we find that Tash depicts in Figure 4 a venturi pump comprising all features of claim 15, with the exception of the automatically deformable nozzle regulator.

Tash discusses a number of applications for the disclosed pump, including draining cisterns, furnace pits, window wells, fountains, pools or pool covers, basements, aquariums, ponds, washing machines, backed-up sinks, boats, or standing water in any other location. Tash, col. 1, ll. 17-28. Tash does not describe application of the disclosed pump in a vehicle propulsion or steering system.

Tash describes an annular ring 38 and hollow cylindrical insert 34 in the pump outlet 16, which together serve to slightly narrow the aperture through the outlet end of the pump body 12 to optimize the efficiency of the pump. Tash, col. 5, ll. 17-28. Tash provides no hint that a means for automatically changing the inner radius of the ring 38 or insert 34 to vary the aperture diameter would be desirable or necessary.

The Examiner proposes some sort of modification of Tash in light of the teachings of Strumbos, but it is not clear exactly what that modification would entail. *See* Ans. 7 and 16. Specifically, the Examiner asserts that it

would have been obvious "to modify the teachings of Tash et al. over Strumbos to design a regulated venturi pump that is easy to operate and does not require any external energy sources and is also very cost efficient because of its simple design." Ans. 7.

Strumbos is directed to a steering or direction controller, and uses selective inflation of sector members 16 through 19 to alter the contour, and length, of the inner annular surface of the controller to generate steering forces to steer the vehicle on which the controller is mounted. Strumbos, col. 1, ll. 11-16; col. 6, l. 29 to col. 7, l. 37. Strumbos teaches that the controller is particularly adaptable for use as the outlet duct in a vehicle propulsion system. Strumbos, col. 9, l. 69 *et seq.*

Analysis:

In rejecting claims under 35 U.S.C. § 103(a), the examiner bears the initial burden of establishing a prima facie case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). *See also In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984). It is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. *See In re Fine*, 837 F.2d 1071, 1073 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966), *viz.*, (1) the scope and content of the prior art; (2) the differences between the prior art and the claims at issue; and (3) the level of ordinary skill in the art. In addition to these factual determinations, the examiner must also provide "some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (*cited with approval in KSR Int'l. Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007)). Only

if this initial burden is met does the burden of coming forward with evidence or argument shift to the appellant. *See Oetiker*, 977 F.2d at 1445. *See also Piasecki*, 745 F.2d at 1472. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. *See Oetiker*, 977 F.2d at 1445; *Piasecki*, 745 F.2d at 1472.

In this case, it is undisputed, as well as apparent from our findings above, that neither Tash alone nor Strumbos alone describes all limitations of claim 15. The Examiner seemingly proposes some combination of Tash and Strumbos "to design a regulated venturi pump that is easy to operate and does not require any external energy sources and is also very cost efficient because of its simple design." Ans. 7. The Examiner does not point to any teachings in either Tash or Strumbos that would support such a reason for combining Tash and Strumbos. As noted in our findings above, the selectively inflatable sector members of Strumbos are used to alter the contour of the inner annular surface of the controller to generate steering forces to steer a vehicle. Tash, on the other hand, is directed to a water pump, wherein the generation of steering forces is neither necessary nor desirable. In short, on the basis of the record before us, the Examiner's articulated reason for combining Tash and Strumbos is not supported by rational underpinning.

Conclusion:

Appellant has demonstrated that the Examiner failed to establish a prima facie case that the combined teachings of Tash and Strumbos render obvious the subject matter of claim 15. Thus, we do not sustain the rejection.

Rejection (4)

Claims 1, 3, and 9-14

Issue:

The Examiner finds that Popov does not disclose an inner tubular cylinder or an automatically deformable nozzle regulator constructed of a deformable material, as called for in Appellant's independent claims 1 and 9. Ans. 9. To make up for this deficiency, the Examiner relies on Blackshear. Specifically, citing to column 5, lines 42-45 of Blackshear, the Examiner finds that Blackshear discloses a pump made of a deformable material. Ans. 9. In view of the teachings of Blackshear, the Examiner concludes it would have been obvious to make Popov's nozzle regulator of deformable material. Ans. 10.

Appellant explicitly disputes the Examiner's finding that Blackshear discloses a pump made of a deformable material. According to Appellant, Blackshear does not teach that any part of the pumping device is made of a deformable material. App. Br. 20, 25.

Accordingly, the issue presented is whether Appellant has demonstrated the Examiner erred in finding that Blackshear discloses a pump made of a deformable material.

Facts:

The Examiner does not point to any teaching in Popov which describes any portion of Popov's jet apparatus as being made of a deformable material. In fact, the Examiner makes an explicit finding that Popov does not disclose an inner tubular cylinder or nozzle regulator made of a deformable material. Ans. 9, 14.

Blackshear likewise does not teach any portion of its pumping device being formed of a deformable material. To the contrary, Blackshear touts as one of the advantages of its device the fact that it is made of "substantially rigid, substantially non-flexing material," and thus includes "no parts to wear out." Blackshear, col. 4, ll. 43 and 46-48. Blackshear additionally discloses that "[t]he pump may be made of any of a variety of rigid and semi-rigid materials which are capable of maintaining the shape and alignment of the parts." *Id.*, col. 5, ll. 34-36 (emphasis ours).

The portion of Blackshear cited by the Examiner as teaching a deformable material simply discloses that "[t]he entire pump may desirably be manufactured from low energy materials, examples of which include fluorinated carbon based resins and fluorinated silicone rubbers." Blackshear, col. 5, ll. 42-45. We find therein no indication that these materials are deformable.

Analysis:

As shown in our findings above, neither Popov nor Blackshear discloses any portions of their devices constructed of a deformable material. The Examiner's finding that Blackshear discloses a pump constructed of a deformable material is not supported by, and in fact is in conflict with, the teachings of Blackshear.

Conclusion:

Appellant has demonstrated that the Examiner erred in finding that Blackshear discloses a pump constructed of a deformable material. Inasmuch as the Examiner's rejection relies on Blackshear for a teaching to form the device of Popov of a deformable material, it cannot be sustained as to claims 1 and 9, and their dependent claims 3 and 10-14, which call for the

inner tubular cylinder or the nozzle regulator to be constructed of a deformable material. We do not sustain the rejection.

Claims 15, 16, and 19

Issue:

Appellant argues that Popov does not teach that any portion of its device is deformable or ever changes any of its dimensions while operating, and thus does not describe "an automatically deformable nozzle regulator . . . that automatically adjusts its output area to further decrease the pressure in the cavity," as called for in claim 15. App. Br. 29. Further, Appellant contends that Blackshear does not teach forming any part of its pumping device of a deformable material and, thus, does not make up for the deficiency of Popov. *Id.*

Accordingly, the dispositive issue is whether the Examiner's rejection adequately addresses the claim limitation alluded to by Appellant by either pointing out where such feature is taught by Popov or Blackshear or articulating a reason with rational underpinning as to why it would have been obvious to provide such a feature in combination with the pressure source and venturi throat as required in claim 15.

Facts:

The Examiner does not explicitly point out where either Popov or Blackshear teaches an automatically deformable nozzle regulator that automatically adjusts its output area to further decrease the pressure in the cavity.

While Popov teaches that the outlet of the peripheral channels 4 can either lie in the plane of the outlet cross-section of the central channel 3, as illustrated in Figure 1, or be shifted relative to the outlet cross-section of the

central channel 3 in the counter-flow direction by a distance L, as illustrated in Figure 2 (col. 3, ll. 12-18), which may adjust the effective area of the peripheral channels relative to the central channel, Popov provides no details as to how such shifting is accomplished. In particular, Popov does not describe any deformation of any portion of the jet apparatus.

As shown in our findings above, Blackshear does not disclose forming a pump of a deformable material. While, as pointed out by the Examiner (Ans. 14), Blackshear addresses backpressure (high pressure from an independent source), in the context of providing a driving flow for the pump (col. 2, ll. 11-12), Blackshear does not disclose a deformable pump element which adjusts its output area to decrease the pressure in the pump cavity.

Analysis:

Neither Popov nor Blackshear teaches providing a deformable element which automatically adjusts its output area to decrease pressure. The Examiner seemingly attempts to account for this limitation by relying on a finding that Blackshear teaches forming a pump of a deformable material. This finding is not supported by, and in fact is in conflict with, the teachings of Blackshear, as discussed above. In other words, the Examiner's articulated rationale for modifying Popov lacks rational underpinning.

Conclusion:

The Examiner's rejection does not adequately addresses the claim limitation alluded to by Appellant by either pointing out where such feature is taught by Popov or Blackshear or articulating a reason with rational underpinning as to why it would have been obvious to provide such a feature in combination with the pressure source and venturi throat as required in

claim 15. Accordingly, we do not sustain the Examiner's rejection of claim 15, and claims 16 and 19, which depend from claim 15.

DECISION

The Examiner's decision is affirmed as to claims 2, 4-9, 14, 17, 18, and 20, and reversed as to claims 1, 3, 10-13, 15, 16, and 19.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2007).

AFFIRMED-IN-PART

hh

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